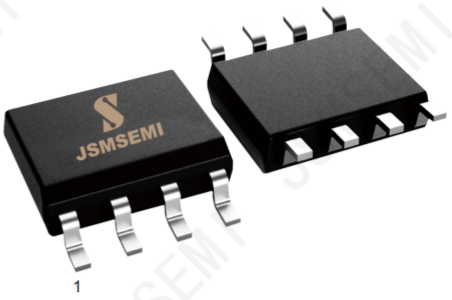
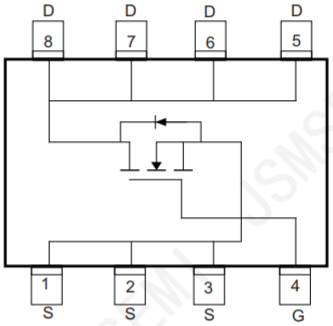
Product Summary

- V_{DS} 150V
- I_D 8A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜50mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



Top View



General Description

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers

■ Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃) (1)	I_D	8	A
Continuous Drain Current (Tc=100℃)	I_D	6	A
Pulsed Drain Current (1)	I_{DM}	32	A
Drain Power Dissipation	P_D	20	W
Single Pulsed Avalanche Energy (2)	E_{AS}	150	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	51	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	2.6	℃/W
Junction Temperature	T_J	-55~ +150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

1) Repetitive Rating: pulse width limited by maximum junction temperature
2) EAS condition : T_J=25℃, V_{DD}=75V, V_G=10V, L=0.5mH, R_g=25Ω, I_{AS}=26A

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
SI4488DY-T1-GE3-JSM	SOP-8	4488	-55 to 150°C	1	T&R,3000	Rohs

■ Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D =250μA	150	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS}=150V, V_{GS}=0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS}=0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2.0	3.4	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=5A	-	42	50	mΩ
		V_{GS}=6V, I_D=4A	-	50	56	mΩ
Gate Resistance	R_g	V_{GS}=0V, V_{DS}=0V, f=1.0MHz	-	1.5	-	Ω
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS}=75V,V_{GS}=0V, f=1MHz	-	1240	-	pF
Output Capacitance	C_{oss}		-	115	-	
Reverse Transfer Capacitance	C_{rss}		-	3.5	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=75V RG=3Ω , I_D=10A	-	8.9	-	ns
Turn-on rise time	t_r		-	4.3	-	
Turn-off delay time	$t_{d(off)}$		-	14.1	-	
Turn-off fall time	t_f		-	4.8	-	
Total Gate Charge	Qg	V_{DS}=75V, I_D=10A, V_{GS}=10V	-	18.2	-	nC
Gate-Source Charge	Qgs		-	6.2	-	
Gate-Drain Charge	Qgd		-	3.8	-	
Gate Plateau	$V_{plateau}$		-	5	-	V
Source-Drain Diode characteristics						
Diode Forward voltage	V_{SD}	T_J=25℃, V_{GS} =0V, I_D=10A	-	-	1.2	V
Diode Forward current	I_S	T_C=25℃	-	-	8	A
Body Diode Reverse Recovery Time	Trr	T_J=25℃,di/dt=100A/us, I_D=10A	-	70.6	-	ns
Body Diode Reverse Recovery Charge	Qrr		-	182.2	-	nC

■Typical Electrical and Thermal Characteristics Diagrams

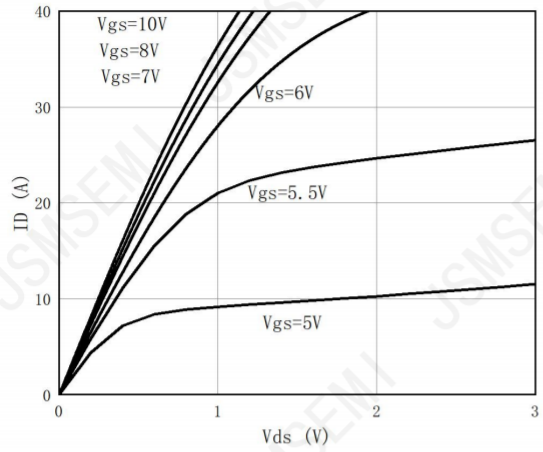


Figure 1. Output Characteristics

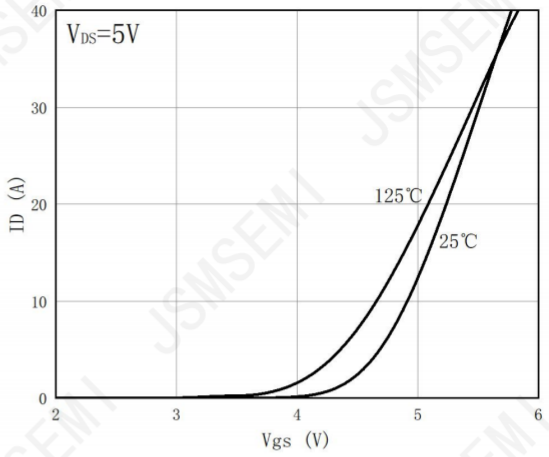


Figure 2. Transfer Characteristics

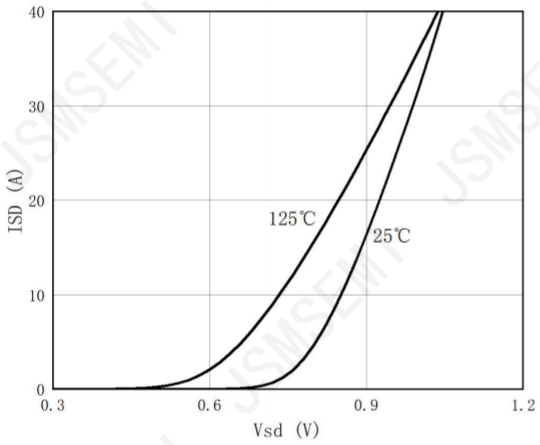


Figure 3. Source Drain Forward Characteristics

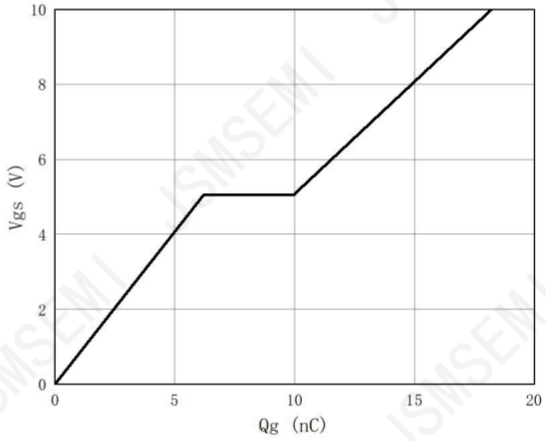


Figure 4. Gate-Charge Characteristics

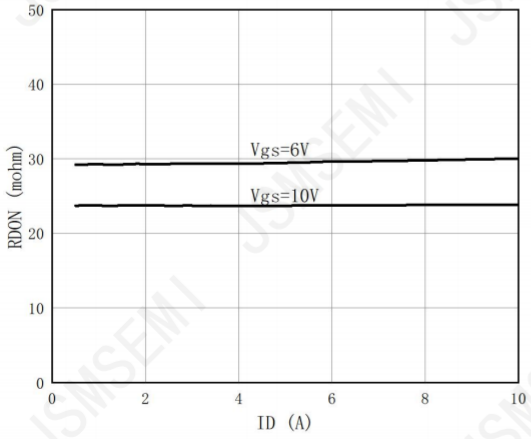


Figure 5. On-Resistance vs. Drain Current and Gate Voltage

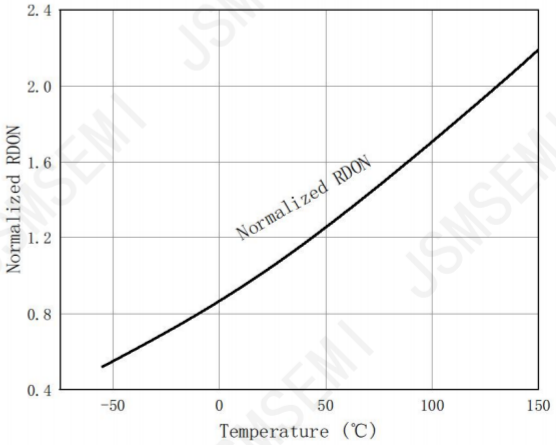


Figure 6. $R_{DS(ON)}$ vs Junction Temperature

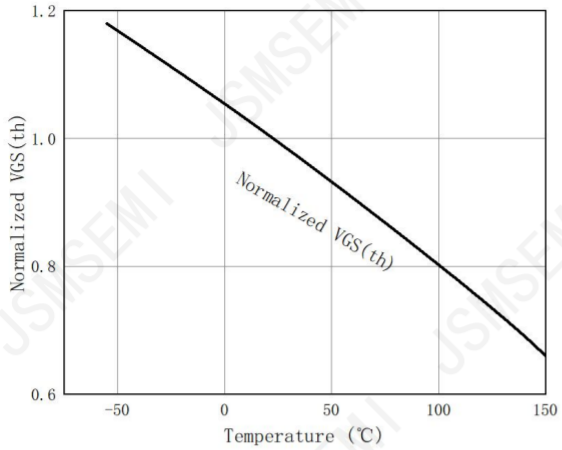


Figure 7: V_{th} vs Junction Temperature

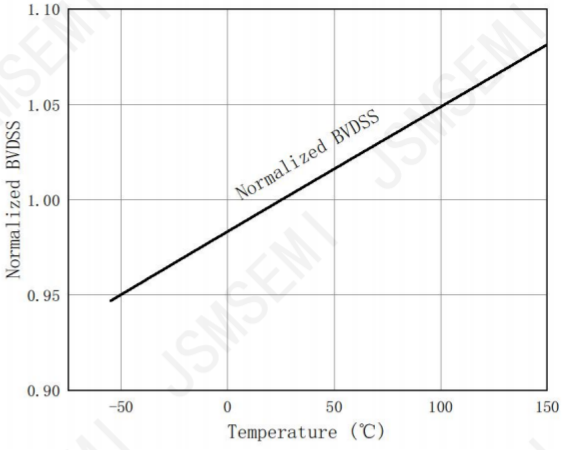


Figure 8.BVDSS vs. Junction Temperature

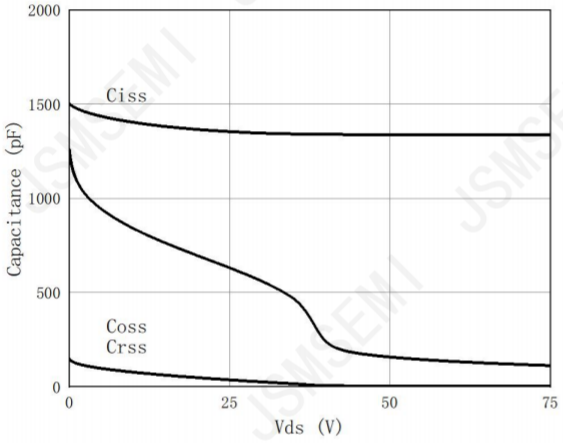


Figure 9. Capacitance

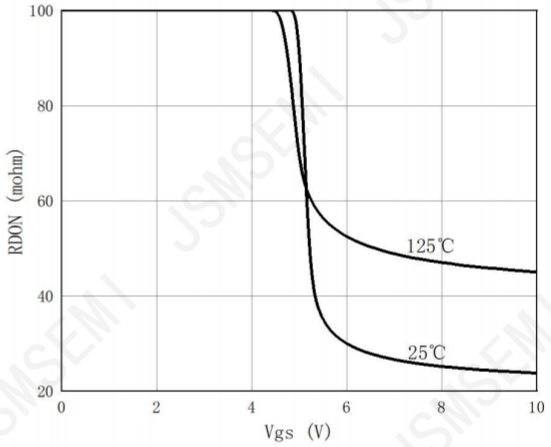


Figure 10. On-Resistance vs. Gate-Source Voltage

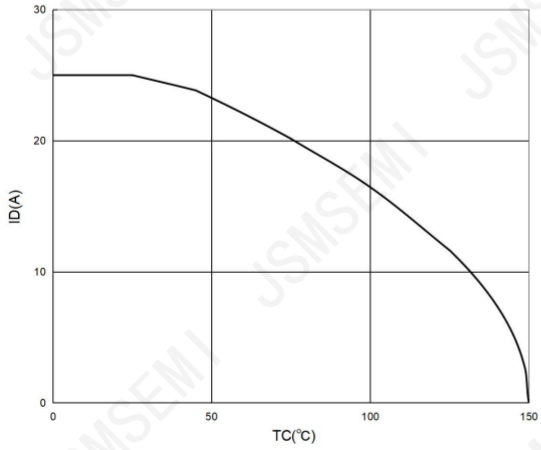


Figure 11. Current De-rating

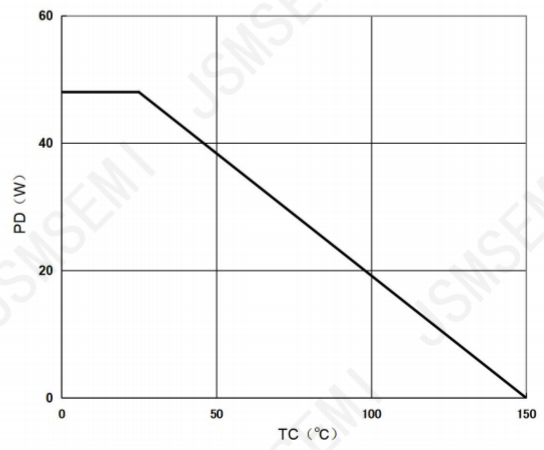


Figure 12. Power De-rating

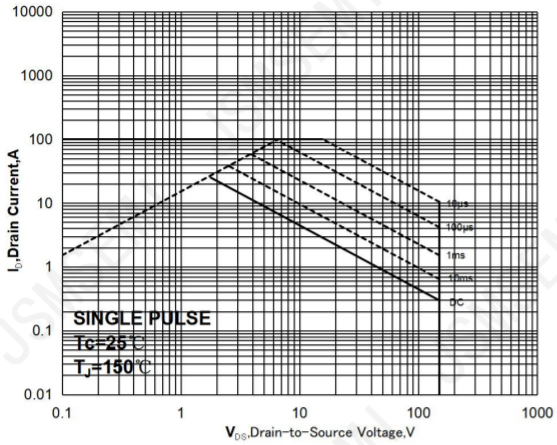


Figure 13. Safe Operating Area

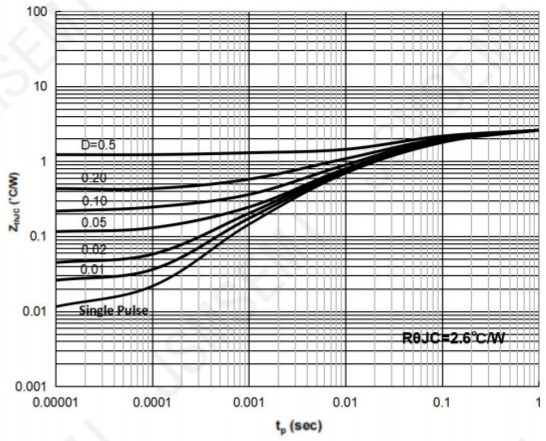
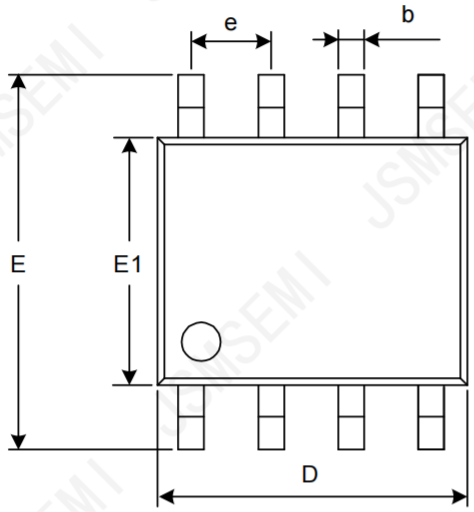
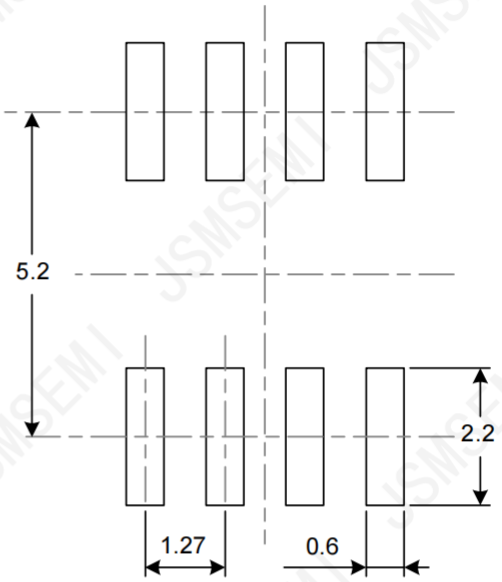


Figure 14. Normalized Maximum Transient Thermal Impedance

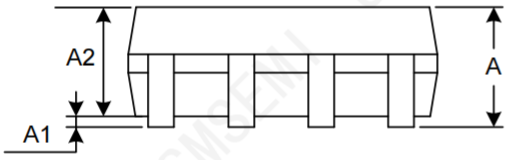
Package Information

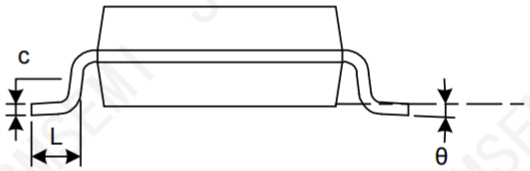
SOIC-8





RECOMMENDED LAND PATTERN (Unit: mm)





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Revision History

Rev.	Change	Date
V1.0	Initial version	9/17/2021

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